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Swedish Patent Application
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STIRRUP SYSTEM

The present invention relates to a stirrup system for horseback riding, and in particular to a stirrup system with increased safety for both rider and horse.

Background of the Invention

During the last century only minor changes/improvements have been done on horseback saddles. The saddles of today all have their roots in the western- or the British type saddles that were developed before the 20th century. Both these concepts are mainly focused on the comfort for the rider and only to a minor extent on the carrying comfort for the horse.

One especially disadvantageous feature of such conventional saddles is the stirrup arrangement. Each stirrup is attached to the saddle by a stirrup strap that in turn is attached to a stirrup bracket on the saddle frame in the front or mid region of the saddle. Hence, when a force is applied on the stirrups a concentrated pressure will arise on the horseback in this region. Furthermore, this arrangement makes it difficult for the rider to find the optimal position on the horse.

Furthermore, the traditional stirrup straps are provided with a standard buckle of the type normally found on a belt for length adjustment, which makes adjustments of stirrup height difficult while on the horseback. US 4,881,303 disclose an alternative stirrup buckle that is simpler to adjust. But, it still suffers from the above disadvantages of applying a point load on the horseback.

Another problem with existing stirrup arrangements is that the rider may get stuck in the stirrup after falling off the horse. There are several stirrup arrangements that

seek to solve this problem, such as US 3,816,974. However, all known systems are based on releasable stirrups that are released from the supporting strap arrangement when a sufficient force is applied on the stirrup, or the like. However, such stirrups may be extremely hazardous as they may release in unwanted situations that can make the rider lose control of the horse.

Summary of the Invention

The object of the invention is to provide a new stirrup system, which system overcomes one or more drawbacks of the prior art. This is achieved by the stirrup system as defined in claim 1.

One advantage with such stirrup system is that it spreads the load from the stirrup over essentially the full length of the saddle, whereby increased comfort is achieved for the horse. Furthermore, the stirrup system spreads the pressure independent of the direction of the load on the stirrup.

Another advantage is that the moveable stirrup arrangement ensures a more correct riding position for the rider in all situations.

Still another advantage is that the system provides simple and precise height adjustment of the stirrup.

Yet another advantage is that the system according to another embodiment is provided with a reliable releasing system that provides for safe riding.

Embodiments of the invention are defined in the dependent claims.

Brief Description of the Drawings

The invention will be described in detail below with reference to the drawings, in which:

Fig. 1 is a schematic view of the present invention

Figs. 2a and 2b illustrate a release mechanism according to one embodiment of the present invention.

Fig. 3 shows an example of a runner of sliding type.

Fig. 4 shows an example of a runner of roller type.

Fig. 5 shows another example of a runner of sliding type incorporated in the stirrup system.

Detailed Description of Preferred Embodiments

As mentioned above, conventional saddles have stirrups that are attached to the saddle frame in the front region of the saddle. Such arrangements give rise to highly concentrated point loads on the horseback. To avoid such point loads, the present invention provides a stirrup system that spreads the load from the stirrups along the full length of the saddle. Fig. 1 shows a schematic view of a stirrup system 10 according to a first embodiment of the present invention, wherein a guide 20 extends from a front end region 30 of a saddle 40 to a rear end region 50 of the saddle 40 and a stirrup 60 is supported by and allowed to move along the guide 20. By this arrangement the pressure form a load on the stirrup 60 is spread in the above manner.

In one embodiment the guide 20 is a bendable element that is supported by the saddle 40 at the front end region 30 and the rear end region 50 thereof, and the guide element 20 is essentially longer than the closest distance between the front end region 30 and the rear end region 50, such that the guide 20 assumes a V shape with the stirrup 60 supported in the bending point, as is shown in fig. 1. In this embodiment the guide 20 is formed by a rope, band, cord, wire or the like that is attached to the saddle 40 or the saddle frame at a front fixing point 30 and a rear

fixing point 50. Preferably, the guide 20 is a bendable element with a smooth surface, such as a rope or wire with a smooth tubular mantle.

As the guide 20 is arranged between the horseback and the leg of the rider, it should be designed such that it is relatively thin, and such that it does not create point pressure on the side of the horseback, e.g. when the rider applies weight on the stirrups 60 or when he/she applies a pressure on the side of the horseback with his/her legs. To achieve best performance for the rider as well as the horse, the saddle 40 preferably is arranged to house the guide 20 and stirrup 60 arrangement, especially at the supporting section along the guide 20. The saddle 40 may e.g. have a recess that accommodates the guide 20 and stirrup 60 arrangement.

Preferably the stirrup system 10 comprises a shield between the guide 20 and stirrup 60 arrangement and the horseback, to prevent wearing action on the horseback. The shield may be formed as a portion of the saddle 40, and can be formed such that it provides low friction for the movement of the stirrup 60 along the guide 20. Furthermore the shield can be provided with movement restricting formations, which prevents the stirrup 60 to move beyond a certain limit along the guide 20. Alternatively, movement restricting formations can be arranged directly on the guide 20, preferably in the form of moveable clips or the like.

Preferably the front fixing point 30 is formed such that the length of the guide 20 is adjustable, whereby the height of the stirrup 60 easily can be adjusted. The adjustable front fixing point 30 may have the form of a buckle of the type disclosed in US 4,881,303, whereby the front end portion of the guide 20 has a flat, band like shape, or it may be of rope/wire locking type. The important aspect is that the fixing point 30 is simple to unlock and relock, such that the height of the stirrup 60 can be adjusted in a simple manner. To facilitate correct height adjustments, the guide 20 can be provided with markings indicative of the stirrup 60 height. Such markings may be in the form of different colored segments on the adjustable section of the guide 20 or the like.

In another embodiment the adjustable front fixing point 30 is of reel-type, whereby the adjustable section of the bendable guide element 20 is rolled onto a reel. To

adjust the height of the stirrup 60 the rider simply rotates the reel in the desired direction, and then locks the reel in the desired position. By this arrangement, a highly adjustable and convenient stirrup system 10 is achieved.

In still another embodiment of the present invention the rear fixing point 50 is arranged at the longitudinal centre of the saddle 40, and the guides 20 from both sides of the saddle 40 are attached to the same rear fixing point 50.

Furthermore the guides 20 can be attached to the rear fixing point 50 by a release mechanism arranged to release the guides 20 when a rider falls off the horse, whereby the stirrups 60 are free to move past the lose ends of the guides 20 and thus can be detached from the same. Preferably the release mechanism comprises a releasing actuator connected to the rider, which actuator actuates the release mechanism to release the guides when the rider falls off the horse. The actuator is attached to the rider by a safety cord that is attached to the rider in a suitable way. It is important that the safety cord is attached to the rider such that he/she not is hindered in any way.

Figs. 2a and 2b schematically shows a schematic example of a release mechanism 70, which is comprised of a pin 80 having a projecting and a retracted position, the pin 80 is biased in the retracted direction by a spring 90, and when in the projecting position, the pin 80 is arranged to retain the guides 20 in fixed position. The pin 80 is kept in the projecting position by an actuator 100 connected to the rider by a safety cord 110, and when the actuator 100 is removed, by a rider falling off the horse, the pin 80 moves to the retracted position by the force of the biasing spring 90. When the pin 80 is retracted, the guides 20 are released and the stirrups 60 are detached from the guides 20.

According to another embodiment the release mechanism is arranged on the stirrup 60 that is supported by the guide 20.

The stirrup 60 can be supported to move on the guide 20 in many ways, According to one embodiment, the stirrup 60 is supported on the guide by a runner 120. To achieve smooth movement of the runner, it can be formed such that it can perform

a sliding movement along the guide (fig 3), or the runner 120 can be provided with at least one running-wheel 130 for rolling movement along the guide (fig 4).

To avoid excessive movements by the runner 120 along the guide 20, the movement of the runner 120 along the guide 20 preferably is damped. One way of achieving a damped movement is to form the runner 120 such that a bendable guide 20 passes through the runner 120 along a crooked path, whereby the movement is damped by the bending of the guide 20. Another way is to provide a runner 120 of roller type with damped rollers 130.

The characteristics for the movement of the runner 120 or stirrup 60 along the guide 20 depend on parameters such as the friction between the runner 120 and the guide 20, the bendability of the guide 20, and the angle of the guide 20 at the bending point. In one embodiment, one or more of these parameters are varied along the length of the guide 20, thus providing different characteristics depending on the position of the runner 120 on the guide 20. Examples of such designs comprise, use of a guide 20 with varying thickness, different surface properties, that a bendable guide 20 is provided with less bendable portions and the like.

Fig. 5 shows an illustrative example of a runner 120 for a band type guide.

Preferably the runner 120 is formed such that it can be detached from the guide 20 without the need of releasing any part of the guide 20 from the saddle 40. One example of a detachable runner 140 is shown in fig. 6 wherein a loop of the guide 20 is inserted into an opening 150 in the runner 140, and the lower end of the runner in turn is inserted into the guide 20 loop such that they are interlooped with respect to each other. This type of detachable runner 140 is well known in the field of rock climbing equipment, and is often referred to as an 8 shaped descender. An advantage with this interlooped runner 140 is that the guide path indeed is crooked and thus damped. Furthermore the interloped runner 140 can be made from one single piece of material, and thus become extremely reliable. The damping characteristics of such runners 140 can be adjusted by altering the shape of the interloop section to control the bending of the guide 20.

The stirrup can be attached to the guide 20 or the runner 120, 140 by a more or less conventional stirrup strap, which further can be adjustable. Alternatively, the stirrup 60 and the runner 120, 140 are directly attached to each other by a firm or flexible coupling, whereby the stirrup strap is eliminated. The stirrup 60 and runner 120, 140 may even be formed as one unit.

In still another embodiment, the guide 20 is a curved rigid element that is supported by the saddle by at least two fixing points 30, 50. A rigid type guide 20 may be of rail type whereby a runner encloses or partly encloses the rail. Alternatively the rigid type guide 20 may be a groove type guide whereby a runner is partly enclosed by the guide.

A number of embodiments have been described above. However, it is obvious that the design could be varied without deviating from the inventive idea of providing a new stirrup system with increased comfort and safety for both horse and rider.

Therefore the present invention should not be regarded as restricted to the above disclosed embodiments, but can be varied within the scope of the appended claims.

CLAIMS:

1. Stirrup system (10) for a horseback saddle (40) characterized in that it comprises

   a guide (20) extending from a front end region (30) of the saddle (40) to a rear end region (50) of the saddle (40); and

   a stirrup (60) that is supported by and allowed to move along the guide (20).

2. Stirrup system (10) according to claim 1 characterized in that the guide (20) is a bendable element that is supported by the saddle (40) at the front end region (30) and at the rear end region (50) thereof, and that the guide element (20) is essentially longer than the shortest distance between the front end region (30) and the rear end region (50).

3. Stirrup system (10) according to claim 1 or 2 characterized in that the guide (20) is supported by a front fixing point (30) and a rear fixing point (50), wherein the front fixing point (30) is formed such that the length of the guide (20) is adjustable, whereby the height of the stirrup (60) can be adjusted.

4. Stirrup system (10) according to claim 3 characterized in that the guide (20) is provided with markings indicative of the stirrup (60) height.

5. Stirrup system (10) according to claim 3 or 4 characterized in that the adjustable front fixing point (30) is of reel-type.

6. Stirrup system (10) according to any of the claims 1 to 5 characterized in that the rear fixing point (50) is arranged at the longitudinal centre of the saddle (40), and that the guides (20) from both sides of the saddle (40) are attached to the same rear fixing point (50).

7. Stirrup system (10) according to any of the claims 1 to 6 characterized in that the guide(s) (20) is(are) attached to the rear fixing point (50) by a release mechanism (70) arranged to release the guide (20) when a rider falls off the horse, whereby the stirrup (60) is free to move past the lose end of the guide (20) and thus can be detached from the same.

8. Stirrup system (10) according to claim 7 characterized in that the release mechanism (70) comprises a releasing actuator (100) connected to the rider, which actuator (100) actuates the release mechanism (70) to release the guide(s) (20) when the rider falls off the horse.

9. Stirrup system (10) according to claim 1 characterized in that the guide (20) is a curved rigid element.

10. Stirrup system (10) according any of the claims 1 to 9 characterized in that the stirrup (60) is supported on the guide by a runner (120, 140).

11. Stirrup system (10) according claim 10 characterized in that the movement of the runner (120, 140) along the guide (20) is damped.

12. Stirrup system (10) according to claim 10 or 11 characterized in that the runner (120, 140) is formed for sliding movement along the guide (20).

13. Stirrup system (10) according to any of the claims 10 to 12 characterized in that the runner (140) is of interloped type.

14. Stirrup system (10) according to claim 10 or 11 characterized in that the runner (120, 140) is provided with at least one running-wheel (130) for rolling movement along the guide (20).

15. Stirrup system (10) according to any of the claims 10 to 14 characterized in that the runner (120, 140) is formed such that it can be detached from the guide (20) without the need of releasing any part of the guide (20) from the

saddle (40).

16. Stirrup system (10) according to any of the claims 1 to 15 characterized in that the stirrup (60) is attached to the guide (20) or the runner (120, 140) by a stirrup strap.

17. Stirrup system (10) according to any of the claims 10 to 15 characterized in that the stirrup (60) and the runner (120, 140) are formed as one unit.

ABSTRACT

A stirrup system that spreads the load from the stirrups along the full length of the saddle in which a guide (20) extends from a front end region (30) of a saddle (40) to a rear end region (50) of the saddle (40) and a stirrup (60) is supported by and allowed to move along the guide (20). According one embodiment the guide (20) is a bendable element and the guide element (20) is essentially longer than the closest distance between the front end region (30) and the rear end region (50), such that the guide (20) assumes a V shape with the stirrup (60) supported in the bending point.

Fig. 1

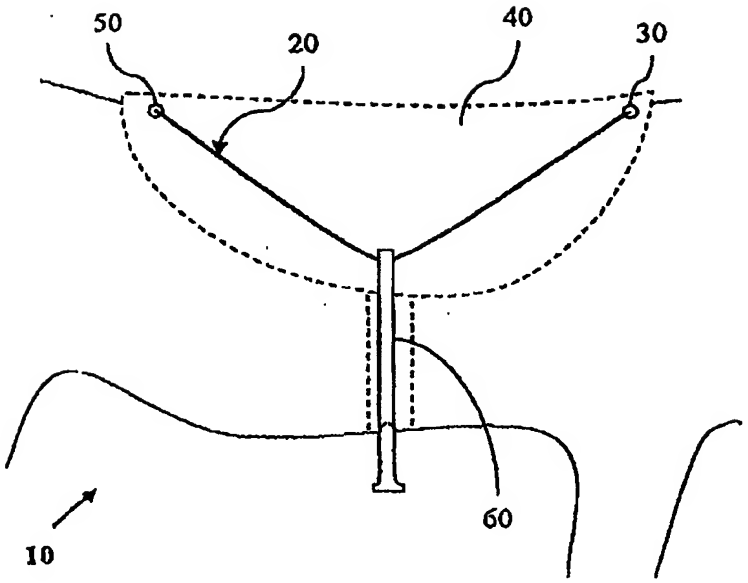

Fig. 1

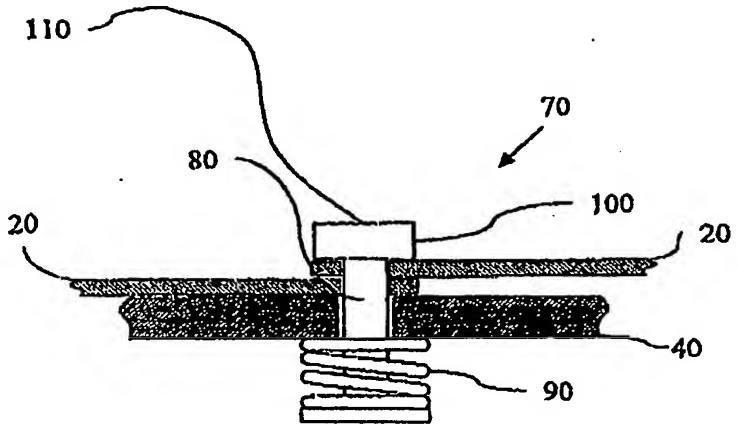

Fig. 2a

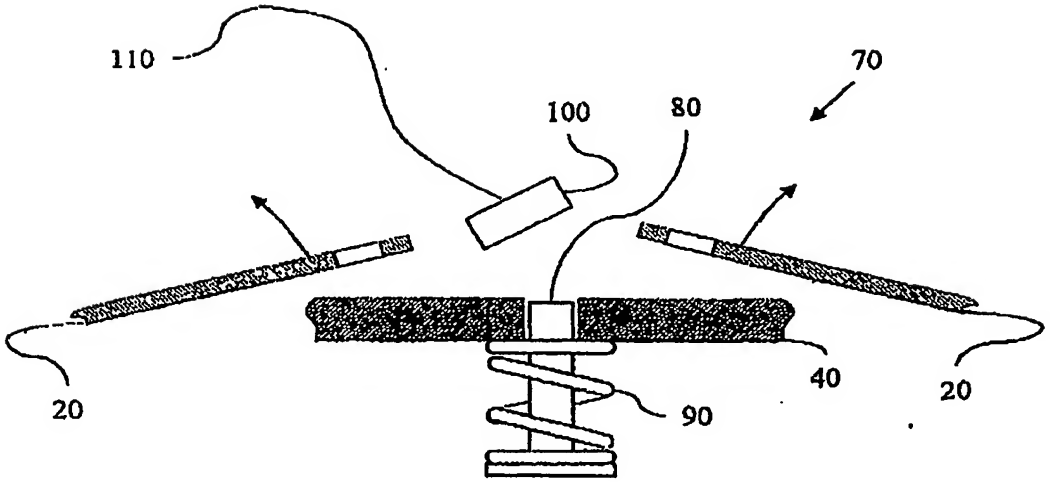

Fig. 2b

018 568939

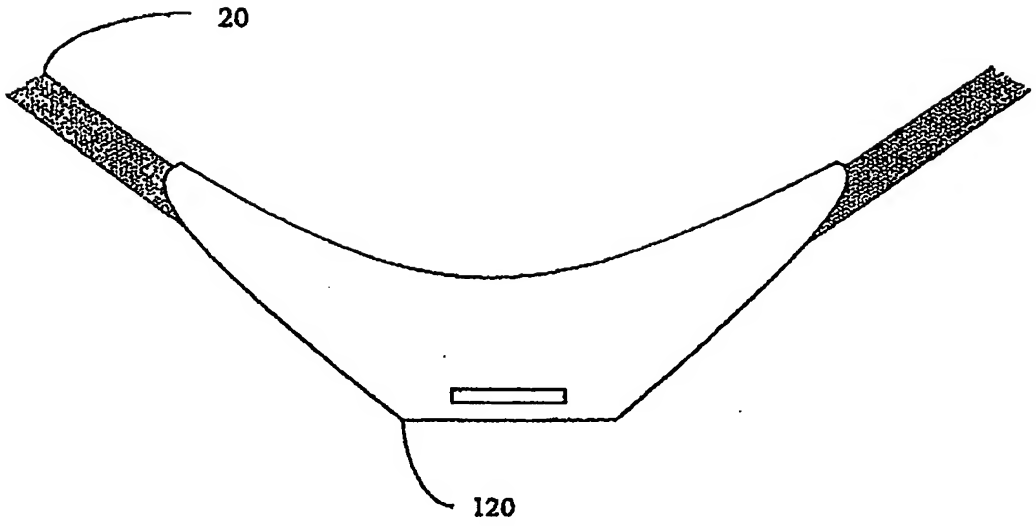

Fig. 3

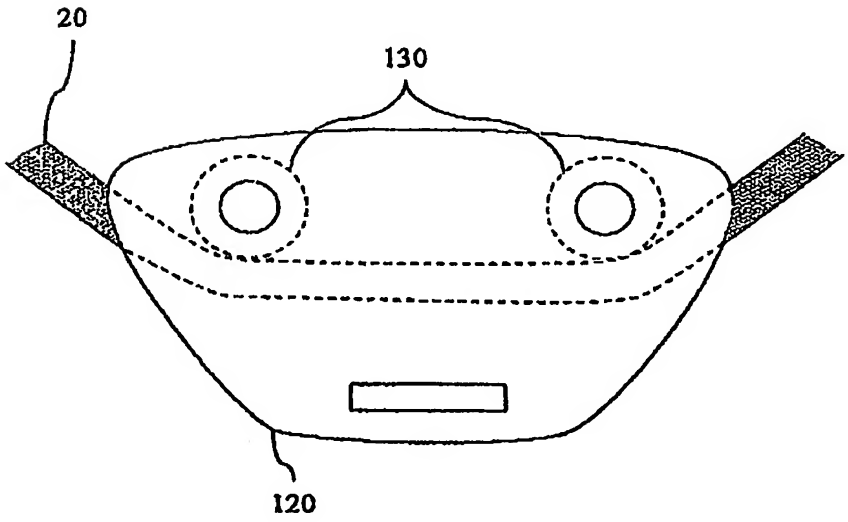

Fig. 4

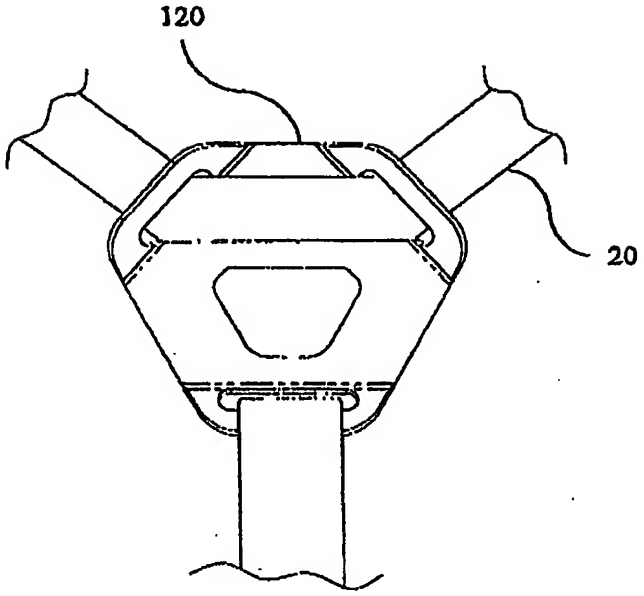

Fig. 5

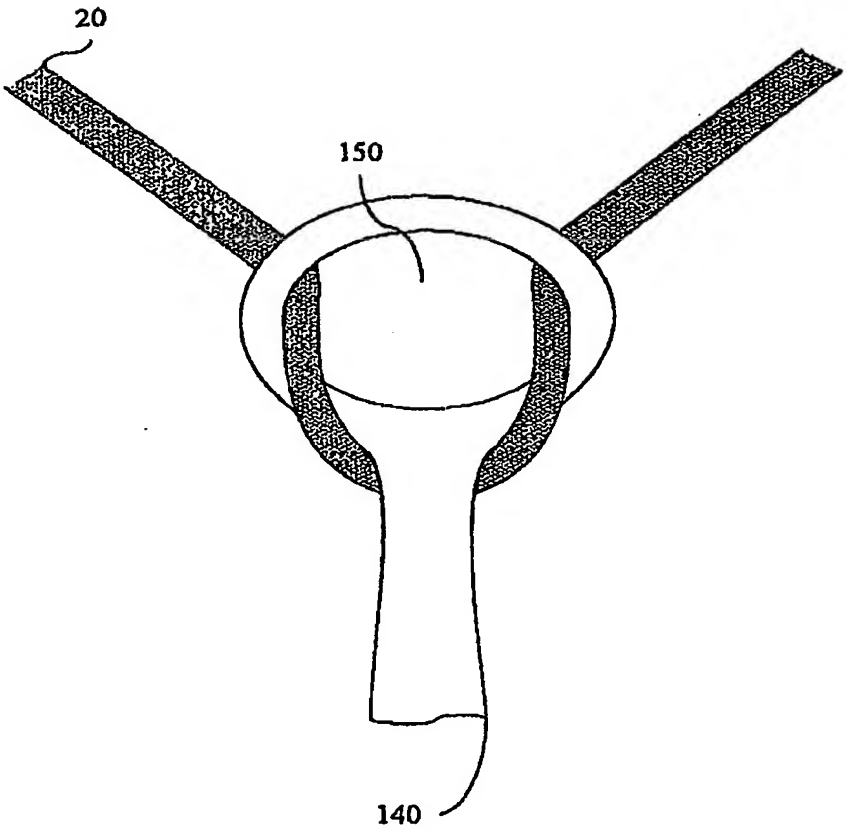

Fig. 6